

The Role of Communication Arts and Sciences in University Life¹

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If one were tempted to dispose of the present topic in a single sentence, the sentence no doubt would assert that since the distinctive role of universities is the advancement of knowledge, the principal obligation of universities toward communication is to contribute to our knowledge of it. And within limits—with which I shall presently deal—the proposition is valid. Ever since universities began to emerge in European civilization, we have turned to them for generalized and empirically verifiable images of man and nature.

In contemporary times, a spectacular convergence of interest has brought the study of communication into the very center of intellectual concern. In the nineteenth century, philologists discovered remarkable uniformities in the lengthening or shortening of the vowel sounds of natural languages. Physicians improved their knowledge of speech disorders and made progress in two modes of localizing the difficulty—one leading to the neuromuscular system, the other to the residues of conflicting experience with culture. The former route led to the correlation

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of brain structure with communicative function; the latter to the correlation of types of difficulty with phases of the socialization process. The former typically ended in surgical or chemical intervention; the latter prompted communicative therapies designed to resocialize troubled or troublesome persons.

Our civilization both expands and differentiates. The growth of media of communication is encouraged in order to maximize (optimize) *power*—the propaganda of political parties, pressure groups, and governments; *wealth*—the advertising of goods and services; *well-being*—programs affecting safety, health, and comfort; *enlightenment*—the dissemination of news and research; *skill*—pedagogical and expressive communication; *rectitude*—appeals to sacred or secular standards of responsible conduct; *respect*—the honoring or dishonoring of individuals and groups; *affection*—the cultivation of popularity.

These several value-institutional processes are objects of specialized investigation in the universities. Political scientists and jurists concern themselves with what is variously called propaganda or psychological war- or peace-fare. Economists look at the role of advertising. Specialists on public health explore the limits of public health campaigns. Schools of communication take as their primary focus the general media—press, film, radio-TV. Educators quicken the pace of inquiry into the role of communication in the cultivation of talent in the arts and sciences. Specialists on religion and ethics explore the comparative history of the proselytizing religions. Sociologists of caste and class examine the communicative practices relied on to sustain status-bound or mobile social systems. Sociologists and social psychologists investigate the language of family and friendship institutions.

All of these scholars are affected by colleagues who, in the name of anthropology or psychology, undertake to provide comprehensive models of the place of communication in culture or in the development of individuals or species. Mathematicians and physicists enter the picture by way of an "information theory" demonstrating that the *physical* events specialized to communication follow the traditional laws of entropy, of order-disorder. The hunt for communication equivalents among living forms is pursued with redoubled zeal, yielding spectacular results in fields as distinct as the mechanisms of genetic transmission, the flying patterns of the bee, the radar installations of the bat, and the stylized creaks and croaks of the ebullient dolphin.

This is indeed a fascinating convergence, all the more so when we realize how far we are from a fundamental explanation of the necessary preconditions of communication of any kind. Consider communication as we know it in human society. The social process is interactive. To speak of *interaction* is to designate a pattern that goes beyond the simple fact that one factor affects another. When an interaction occurs, participant A is likely to be so modified by his experience of B that future predispositions are modified. A stores a residue of the experience, and the residue is subject to retrieval. When retrieved, it influences the way that A deals with B, or with substitutes for B. Meanwhile, B is displaying corresponding changes in regard to A.

In an interaction, two sequences can be distinguished from one another: *communication*, *collaboration*. The former uses *signs*, which are physical resources or movements specialized to the task of mediating between *symbols*, which are subjective events of intended message sending and of interpretation of messages received.

Symbol events can be correlated—with different degrees of success—with neuromuscular, glandular, electrical, or other somatic events; or with gestures, vocalizations, and other signs in the social environment. To communicate is, for example, to speak, gesticulate, write, print, carve; to collaborate is to push, pull, hit, transport.

The analysis indicates something about a frequent, though not invariable, mark of the symbols or signs involved in nets of communication. They seem to be economical of the mass-energy magnitudes with which physics deals. The attenuation of mass-energy requirements is suggested by the modest energy outlay of the brain if compared with other parts of the body, or by the small size of the facilities necessary to transmit messages if compared with the transportation of materials.

It is not necessary to take a final position on whether subjective events will some day be "reduced" to mass and energy, or whether mass and energy will eventually be subsumed in a more comprehensive system of "energies." We use the term "event" to refer to the whole or to any part of man and nature. In this way, no sharp line of demarcation is implied between "subjective" and "nonsubjective" events. It is feasible to refer to each event of reference by employing, as convenient, such multiple indicators as symbol, mass, or energy.

What, then, is the distinguishing mark of a symbol event? Evidently the answer is "referentiality." We can do no more than hint at the complex models that have been proposed to describe the phenomenology of mental processes. Three components (reducible to two) are implied: a *referral* event; a *modality* of referral; an *object* of referral. The referral event is the "primary ego symbol" ("I," "me"). The modality is the characterizer ("am aware of," "see"). The object is the event characterized ("him," or reflexively the "ego" or "am aware of").

To classify references is to summarize the content of communication. In this framework, the act of communication is a sequence of statements. Each statement is a reference to the statement maker, to the modality of referral, and to the object. We often re-analyze a statement into a "subject" and "predicate," the former including the reference to the statement maker, and the latter to the modality and the object.

As indicated above, there is no agreement on the factors that explain the emergence of symbols and signs. Suppose we permit ourselves some latitude to speculate on the problem. It is possible to single out for mention the distinctive characteristic of a symbol event. *A symbol event is a highly generalized version of an interaction.* A double function is involved. Factor A in interaction with B plays two roles: A initiates an impact on B; A receives an initiative taken by B. A symbol—or, more precisely, a statement—is an instance of doubling since there is both a subject and a predicate, and the ego is exhibited as an initiator of predicates and as a potential object of reference by a predicate.

Can a further step be taken? Having distinguished "doubling" as the use of referentiality, the problem is to formulate a promising hypothesis about the conditions under which doubling can first occur.

Perhaps we can discover the right road by considering the circumstances in which the mass-energy characteristics of interaction are attenuated. When do events become less easy to characterize in terms of the operational indices employed by physicists, and more "referential"?

It is reasonable to speculate that attenuation is most likely to occur when interactions are most numerous. A central position in a field of interaction would appear to be the most likely locus of referentiality. Incoming initiatives conflict with, or facilitate, one another; then they proceed toward the periphery. The forms

that are stirred to action in the process are likely to be better off if they deal promptly with initiatives. *Promptitude* frees the responder to meet other influences; and it is not difficult to name some situations, at least, in which freedom is advantageous. For example, it may be possible to nullify a destructive influence. Promptness is probably unfavorable to excess material. Attenuation implies a process of subtraction until doubling (in the form of referentiality) alone remains.

Does existing knowledge lend credibility to the hypothesis that symbolic events first occur in a field of very high interactivity? Consider the evolutionary success of concisely organized systems of coordination. The brain and the spinal cord are more versatile and more simplified in basic structure than the glandular-enzymic-circulatory design. Are computer systems possible sites for symbolic events?

Whatever answers there may be to such a question, we have little doubt that as the facilities of great universities are further mobilized, the origins of communication will gradually be unveiled.

Up to this point I have been emphasizing a single characteristic of communication: it *accelerates* interaction. There are, however, other functions whose implications for the intellectual life as a whole, and especially for universities, are of vast importance. These additional functions are intimately connected with referentiality. Such functions can be studied to the best advantage in human society. Communication brings symbols into the present that refer to events which, though not part of the present, can influence the behavior of individuals and groups. Referentiality introduces unheard-of possibilities of creative problem solving.

Analysis of communication discloses five categories of content that are directly implicated in problem solving. (a) Some references are to goal events, or objects of preference and volition. (b) References are to trends or away from goal realization. (c) Abstract references to conditioning factors designate the fundamental elements and routines involved. (d) Symbols of expectation project the probable occurrence of future events, whether desired or not. (e) Symbols refer to objectives that fall within the broad field of goal preference and initiate policy alternatives that are evaluated according to their value maximizing potentials.

It is the problem-solving capability of mankind that has made

possible the creation of many folk cultures and, in the last seven or eight thousand years, a few civilizations. One of these civilizations—heavily specialized to science and technology—is moving toward universality. And this universality is already more inclusive than the surface of the earth. Man's goal-setting activities have achieved a cumulative result that led biologist Julian Huxley to speak of man's taking evolution into his own hands. As economist Dennis Gabor expresses it, we "invent the future."

Already the role of universities has been prodigious in fostering these developments, and it is reasonable to predict that in the future the impact of universities will increase. Already they are among the most massive and strategic storage facilities of society: they accumulate books and data banks; they draw on the content of the memory stores of the entire academic community.

As the previous analysis indicated, problem solving includes the clarification of goal values and the invention and evaluation of policy alternatives in the light of trends, conditions, and projections. If we are to take evolution into our own hands or invent the future, the universities will most certainly be implicated. The question is how well these involvements will be executed.

When we examine the perspectives of the academic world and communicate with the various components of universities, a strange phenomenon appears. Many members of the academic community seem ill at ease at the mention of values. Any discussion of goals and objectives of universities, of society, of the species arouses symptoms of anxiety. Dogmatism, irritation, impatience, evasiveness—all the familiar stigmata of inner conflict make their appearance.

The situation gets "curiouser and curiouser" if you examine what university people say to legislators and foundation executives when they want money. Evidently it is an established tradition that the pursuit of knowledge (enlightenment) as an end in itself (a scope value) is a rare thing in human society. Hence, if facilities are needed to carry on the pursuit of knowledge, these base values can only be obtained by telling the world not that enlightenment is an "end" but a means—a base—for other values that the common man is supposed to recognize (such as wealth, health, or power).

In view of the emphasis that is given to value goals in the public communications of universities, it might be assumed that

faculties are engaged in continuing seminars (or other communication situations) in which the distinctive objectives of the university are under perpetual review in terms of all the goals of mankind. Such continuing opportunities for clarifying the role of the university and of its component parts would presumably include the projection of future developments. Since scientific and technological factors are of accelerating significance for the future of man on earth and in outer space, the emerging lines of scientific and technological knowledge would be explored. Since many of these potential developments pose problems affecting the biological future of all life, and the value-institution sectors of social process at every level, the critical consideration of contingent events may be expected to clarify goals and objectives of man as a species or a culture member and lead to the invention of innovations designed to fend off loss or to allow positive gain.

Presumably the distinctive value goal of universities is clear in these deliberations since it is generally recognized that the advancement of knowledge, especially of empirical knowledge, is the proper province of these institutions. It is not the distinctive role of universities to exercise power, pre-empting governments; or to pursue wealth, rivaling business corporations; or to set standards of rectitude, pre-empting ecclesiastical and ethical institutions; or to substitute for families, hospitals, or other social institutions. Whatever the additional roles a particular university may undertake, its primary obligation remains the pursuit of enlightenment. Presumably it is understood that value statements of goals or problems are treated as challenges for the pursuit of further knowledge that may assist in clarifying any future consideration of goals or problems. Presumably it is perceived that the cultivation of self-observation in universities is to acquire experience in applying a scientific viewpoint to at least one of the principal sectors of society.

It would, however, be a mistake to suppose that university faculties engage in a continuing dialogue along these lines among themselves or with students, alumni, donors, and other members of society. It would be quite erroneous to assume that the problems of biological or cultural man are given continuing, though intermittent, and systematic consideration. The stored assets of the university community are not retrieved, assessed, or amplified in such an intellectual exercise.

Many factors help to account for the prevailing lack of rationality in the self-examining activities of universities. Not the least of these factors is the "evaluation neurosis" referred to before, the symptoms of anxiety that appear when value goals and objectives are referred to. I mentioned the split between evaluative statements treated as fit for use in money raising, though unsuitable for serious and sustained communication within the university.

Some of the difficulty is no doubt related to the use of words (like "value" or "evaluation") with many meanings. But this is scarcely a distinguishing characteristic of "value." Ambiguity applies to "truth," "law," and "decency," for instance, and, alas, to the notations used in grading systems. Universities are quite at home with ambiguity. (In the present context, "evaluation" refers to the subjective *event of preferring*; "value" refers to the *event preferred*—such as giving or receiving support in an election [power]; giving or receiving claims to dollars, gestures of respect, expressions of affection, or characterizations of rectitude; giving or receiving opportunities for well-being, skill, or enlightenment.)

Sometimes there is reluctance to perceive that the demand for enlightenment is an evaluation in the same sense that the demand for love or power or money is an evaluation (or "value," for short). Occasionally it is an illuminating exercise to ask a physical scientist to spell out his demands on himself in his professional role. A candid reply would be phrased somewhat as follows: "My principal goal is to contribute to human enlightenment about natural events. I must guard against any biasing goal that would interfere with this overriding purpose. My task is to accept as true those statements about natural events that conform to procedures that are precautions against error. The most credible statements are disciplined by laboratory procedures. Correlations are less satisfactory. My objective is to establish generalized models of the interdependence of factors that most economically account for past, present, and prospective observations."

In large part this model is acceptable to specialists on human society. They, too, aim at enlightenment and try to make statements about past events that pass procedural tests before they are accepted as valid (within some margin of error). There are, however, differences. Unlike social and behavioral scientists, many historians do not aim at generalized models of a scientific

(explanatory) character. They are content to establish the credibility of particular statements.

The conception of enlightenment, as used here, is sufficiently comprehensive to include scholars who exercise a critical function, as distinguished from scientific or historical activities. A free-wheeling, critical intelligence can explore all assumptions regarding man and nature. Minds can be freed for creative thinking if they are subjected to the discipline of articulating and comparing initial assumptions. In connection with current programs of economic and social development, for example, it is useful to have working priorities brought into question. For instance: When, if ever, is it justifiable to use resources for economic growth rather than to save lives? Or to build schools and hire teachers rather than to construct temples or churches?

Another critical exercise is to call in question the specific institutional patterns that are specialized to various value outcomes. In economic affairs, when, if ever, should capitalism or socialism be the preferred system? When, if ever, should relatively stable military dictatorships be preferred to relatively unstable parliamentary setups?

Some of the objections that have been put forward in the name of science to the consideration of evaluative statements echo the warfare between science and religion, a warfare that stays alive as long as descriptive statements or hypotheses are sought to be censored in the name of God. More recently, the battlefield is the warfare between science and metaphysics, a struggle that continues as long as statements about future events are treated not as hypotheses for inquiry but as dogmatic truths revealed by historical materialism.

In relatively free societies such as ours, it is no longer necessary for those who pursue knowledge to cut themselves off, in phobic fashion, from any type of communication that may contribute to the advancement of knowledge. It is not useful to stop the communication process when, in the name of a traditional faith or system of philosophy, declarations of preference have been made. In a university world that is distinctively devoted to enlightenment, clashes of preference can be treated creatively. They can be used as occasions for opening new questions calling for empirical research. When, at a later time, the fruits of inquiry become available, the formulation of value goals and objectives is resumed with added clarification and relevance.

The implications of this value-oriented approach can be brief-

ly suggested by giving consideration to the problems that emerge when we give thought to the articulate goals of American society. Indeed, if the universal Declaration of Human Rights is evidence, it can be held that almost all of the political elites of the world are *verbally* committed to policies that realize the dignity of man on the largest possible scale.

It is entirely appropriate for university seminars composed of members of the faculties of the physical, biological, and behavioral sciences and the humanistic studies (including all the professional schools) to expose themselves to the experience of specifying human dignity in operational terms. This is not only an imperative challenge to social scientists who are in the midst of devising computer programs to simulate the operations of a national economy, or ultimately of a whole society, whether the scale is national, subnational, or transnational; the exercise provides a working frame of reference for raising questions about the probable impact of future scientific and technological developments on every society, including each value-institution sector. The flow of communication, not only through the media of general dissemination but also through the specialized media of every institutional process, can be spelled out and related to collaborative changes. The entire social process of value shaping and sharing and the whole panorama of institutional invention, diffusion, and restriction can be simulated at past, present, and future cross sections in time. The impact of the physical environment and of all natural resources and living forms in human society can be worked out in detail, and the answering impact of man and his society on other forms of life and on the resource environment can enter the picture.

No matter how modestly circumscribed or how inclusive, seminars can achieve a continuing sense of identity with the whole context of knowledge as it unfolds in perpetual interaction with clarified goals, objectives, and strategies of policy.

Think for a few moments of some of the questions that emerge when middle- or long-range problems are identified in a systematic map of man, society, and nature. Each of the sample questions raised in the following list can serve as a challenge to the present state of knowledge. If you ask yourself what research implications there are, you may gain some present benefit from this sadly abbreviated version of a continuing seminar procedure:

Power. Assume that we want to have world security by consent. In an age of outer space exploration, by what arrangements,

if any, can the likelihood be diminished that the conflicts of a divided earth will be transferred to a wider arena? Assume that we want democratic sharing of power. If human effort seems less and less necessary for production (as machines take over), how can the effective power of the common man be protected?

Enlightenment. Assume that human society should protect itself. What licensing arrangements, if any, should be worked out for the regulation of research and development programs designed to simulate (or excell) human beings? Should all simulated and advanced forms of life be programed to share the human fate of discontent with their problem-solving achievements?

Wealth. Assume that economic institutions should be continually compared with one another. Should explicit standards be developed for prescribing the limits within which each economic pattern can be used in a nation state (e.g., government monopoly, private profit monopoly, private nonprofit monopoly, competitive private profit enterprise, competitive private nonprofit enterprise)?

Well-Being. Assume that man should prefer to improve the species. Should licensed opportunities be available to obtain spermatozoa from refrigerated deposits of distinguished people? Should human reproduction be impermissible save by license?

Skill. Assume that diversity in the cultivation of human capability should be encouraged. Should all forms of discontent among nonscientists be channeled for catharsis purposes into artistic activity? Would this provide both an "opiate" and a positive contribution to the cultural heritage?

Affection. Assume that freedom in the choice of friends and intimates is a goal. Should sexual activity that is freely engaged in (that is, noncoercive activity) be regarded as a private matter and given legal protection regardless of the forms employed?

Respect. Assume that advanced forms of intelligent beings deserve respect. Should all "higher plants or animals" or "machines" that achieve a level of problem-solving capability equal to man receive equality of opportunity to participate in the shaping and sharing of all values?

Rectitude. Assume that noncoercive conduct is desirable. Should all simulated forms of life (and eventually all men, as technique develops) be structured in such a manner that they will be unable to use coercion against one another without special treatment and license?

Contextual, problem-oriented thinking is encouraged by proper

procedures. It can add to the distinctive function of universities, especially, by providing a communicative environment in which the limitations of knowledge are systematically disclosed and inventive speculations set free.

It need scarcely be said that existing universities need to review the adequacy of their internal (as well as external) practices of communication. Innovations are already appearing. For example:

All-University Seminars. Columbia University has had such an institution for several years. Faculty members count participation as part of their academic obligation. A sample topic: The problem of comparative bureaucracy.

All-University Appointments. Harvard University introduced the practice of naming a few individuals to all-university professorships, with the privilege of attaching themselves where they believe they can do the best work.

Interdisciplinary Programs of Advanced Training and Research. During the past ten years, the Center for Advanced Study in the Behavioral Sciences has been operating at Palo Alto, California. It was partly modeled on the Institute for Advanced Study at Princeton.

We note briefly the following possibilities that relate directly to the present topic:

Center for Research on Universities. A structure of this kind could be established within the framework of a single university or under joint auspices. The problem would be to assess the impact of the advancement of knowledge on society.

Center for Research on Communication. Such a structure would focus on the role of communication in all forms of life. It would give particular attention to the aggregate impact of all media on every value-institution process.

In connection with these centers, new methods of prototyping and of micro-modeling could be adapted to the problems under study. Micro-models can include maps, charts, and other visual aids designed to provide an auxiliary brain to keep contextual data at the focus of deliberation. (In this category comes the conception of a social planetarium to present models of the past and future.)

A center of communication brings together subject matter specialists from every field of knowledge and with every degree of primary concern with the several problem-solving tasks. In such

a center, the full significance of enlightenment can be realized as the tradition-bound limitations on the urge to communicate and the strategies of communication are overcome. Creative minds can refuse to be intimidated by the prejudice that enlightenment is, in effect, for the few and that the most that can be shared throughout the heights and depths of society is "fun culture." There is, after all, a principle of equivalence. Such a principle reminds us that the experience of every human being is a contextual whole. In everyone's experience lies the actual or potential equivalent of everyone else's fundamental moods and basic images. If we do not succeed in the search for equivalency, we give up the prospect of communication; and to give up communication is to surrender the challenge and the potential of the brotherhood of man and the fraternity of all advanced forms of life. At present, we are too ignorant to give up hope. The present state of knowledge is not enough to warrant despair.

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The positions taken in this discussion can be summarized as follows: universities are responding to a converging scientific attack on communication. Interdisciplinary programs can hope, eventually, to comprehend the occurrence of symbol and sign events and to devise strategies to realize the potential changes implied. Symbols *refer*, and the function of referentiality brings into any current problem-solving activity a context of past and future events, available for evaluation and arrangement. By candidly and continuously looking at all value goals and objectives, and especially the overriding goal of human dignity, it is possible for universities to discover ways and means of advancing basic knowledge of the factors that condition success or failure and to participate with ever greater effectiveness in intra-university and extra-university forums that clarify goals, describe salient trends, analyze conditions, project developments, and invent and assess policy alternatives for the maximizing of preferred events. By focusing on communicative phenomena, the road is most direct for measuring up to the potentialities of man as we take evolution in our own hands. We may have great successes; and we may have a catastrophic failure. But at least we shall have lived in—and not resigned from—the world of the mind.